

New Exotic Crane-Flies (Tipulidae: Diptera). Part VI

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The preceding part under this general title was published in ENTOMOLOGICAL NEWS, 73: 122-129, 1962. At this time I am describing further species from India, all belonging to the great genus *Hexatoma*, particularly well developed in southeastern Asia. All materials discussed at this time were taken by Dr. Fernand Schmid in Assam, chiefly in Manipur State, the most easterly part of India, and especially on the two highest mountains of Manipur, Sirhoi Kashong and Hkayam Boum. An instructive account of Manipur, with particular reference to Sirhoi Kashong, has been provided by the late Frank Kingdon-Ward.² I am greatly indebted to Dr. Schmid for this continued interest in making known the vast crane-fly fauna of India. All types are preserved in my personal collection of these flies.

Hexatoma (*Hexatoma*) *khasiensis*, new species.

General coloration of thorax brownish gray, praescutum with three opaque more blackened stripes; antennae of male very long, about three times the wing; wings tinged with gray, the relatively large stigma dark brown, conspicuous; *m-cu* about one-half longer than distal section of *Cu*₁.

♂. Length about 5.5 mm; wing 6.5 mm; antenna about 20 mm.

Rostrum very short, yellow; palpi small, blackened. Antennae of male greatly lengthened, about three times the wing, dark brown to black, base of the enlarged scape more yellowed; flagellar segments elongate-cylindrical, outer segments progressively more lengthened, the last one very long; segments with an abundant dense white pubescence on upper face, the vestiture

¹Contribution from the Entomological Laboratory, University of Massachusetts.

²KINGDON-WARD, FRANK. Plant hunter in Manipur, pp. 1-254, 12 pls., 1 map; 1952 (Jonathan Cape, London).

slightly longer than the diameter of the segment. Head brownish gray, the exceedingly large bulbous vertical tubercle darker brown to black.

Prothorax small, light brown. Mesonotal praescutum brownish gray with three opaque more blackened stripes, the central one with a vague capillary still more blackened median line; posterior sclerites of notum brownish black, surface sparsely pruinose, posterior border of scutellum, parascutella and post-notal suture more yellowed; mesonotum glabrous. Pleura blackened, sparsely pruinose; dorsopleural membrane and ventral pteropleurite paler. Halteres with stem yellowed, knob brownish black. Legs with coxae light brown, fore pair darker; trochanters yellowish brown; remainder of legs dark brown. Wings tinged with gray; stigma oval, dark brown, relatively large; veins brownish black, some, including the cord, heavy and conspicuous, M , its outer branches and vein $1st A$ more slender. Veins behind costa virtually glabrous, distal section of R_5 with a few small punctures; costal fringe short. Venation: Sc long, Sc_1 ending about opposite fork of Rs , Sc_2 removed; R_2 at fork or R_{2+3} present as a short element about one-third as long as R_2 ; radial branches divergent, cell R_3 at margin slightly more extensive than cell R_2 ; $m-cu$ near fork of M , about one-half longer than distal section of Cu_1 , cell M_4 at margin unusually extensive.

Abdomen, including hypopygium, uniformly black.

Habitat. INDIA (Assam). *Holotype:* ♂, Kalanga, Mikir Hills, United District of Mikir and North Cachar Hills, 200 feet, May 1, 1960 (Fernand Schmid).

The most similar regional species is *Hexatoma* (*Hexatoma*) *brevistigma* Alexander, of Thailand, which differs especially in the coloration of the body and wings, including the small but distinct stigmal area.

***Hexatoma* (*Eriocera*) *kala*, new species**

Size medium (wing of male about 12 mm); thorax orange yellow, praescutum and scutum patterned with brown; head in-

tense black; antennae, halteres and legs black; wings strongly blackened, cell M_1 present; abdomen orange, segments five to seven intensely black.

♂. Length about 10.5–11 mm; wing 12–13 mm; antenna about 2.3–2.4 mm.

Rostrum dull orange, mouthparts more yellowed; palpi black. Antennae of male 8-segmented, black throughout; flagellar segments gradually decreasing in length outwardly, with very elongate verticils. Head intense black; vertical tubercle small, unequally quadrituberculate, the central pair more evident.

Pronotum light orange yellow. Mesonotal praescutum with anterior fourth and broad anterior lateral margins light orange yellow, the posterior area patterned with brown, lateral triangles darker, continued backward to include the scutal lobes; central region of praescutum with two paler brown intermediate stripes that are separated by a narrow yellow vitta; median region of scutum, the broad scutellum and postnotum clear orange yellow, with a depressed pale brown area on the postnotal suture immediately behind the wing roots; thoracic dorsum unusually glabrous, with very sparse small setae on posterior praescutal interspaces and the scutellum. Pleura light orange yellow, including the dorsopleural membrane; a small brown spot on dorsal posterior part of anepisternum, before the wing root. Halteres black. Legs with coxae orange, unusually glabrous, with sparse setae on fore and middle pairs, longer at tips, hind coxae with longer setae on posterior faces; trochanters obscure yellow; remainder of legs black, femoral bases very narrowly and vaguely obscure yellow; interpolated scales of legs very slender, setoid; basal spine of claw conspicuous. Wings strongly blackened, without stigma; vague paler streaks in certain of the cells, especially in outer ends of R and M and base of $1st A$. Longitudinal veins beyond cord with abundant black trichia, lacking on Cu_1 ; basad of cord with trichia on apical fifth of R_s , very sparse and scattered on outer third of M and end of $1st A$. Venation: Sc relatively short, Sc_1 ending about opposite midlength of R_{2+3+4} ; R_2 slightly oblique; R_{2+3+4} about twice R_{1+2} ; cell M_1 present, about twice its petiole; $m-cu$ at near two-thirds M_{3+4} .

Abdomen clear orange, segments five, six and seven intensely black; in cases the extreme lateral and posterior borders of tergites two to four narrowly and vaguely darkened; ninth tergite with coarse black setae on lobes.

Habitat. INDIA (Assam). *Holotype:* ♂, Sirhoi Kashong, Manipur, 7,500 feet, July 12, 1960 (Fernand Schmid). *Paratopotypes:* 3 ♂♂, July 11–12, 1960.

Hexatoma (Eriocera) kala is an especially attractive species that is allied to *H. (E.) aurantia* (Brunetti), from which it is readily told by the coloration of the body and by the venation. In *aurantia* the entire body is orange and cell M_1 is very deep.

Hexatoma (Eriocera) karma, new species

Size medium (wing of female to 17 mm); general coloration dull black, the genital segment fulvous; mouthparts, antennae, halteres and legs black; wings strongly suffused with brown, base narrowly more yellowed; cell M_1 present.

♀. Length about 15–19 mm; wing 14–17 mm; antenna about 2.6–3 mm.

Rostrum and palpi black. Antennae of female 8-segmented, black throughout; flagellar segments gradually decreasing in length and diameter, the last two subequal. Head dull velvety black; posterior vertical tubercles small, simple, anterior tubercles low and ill-defined.

Thorax dull black, praescutum with four narrow glabrous more plumbeous stripes; setae of interspaces long and delicate, erect. Pleura black. Halteres and legs uniformly black. Wings strongly suffused with brown, costal border more evidently darkened; no stigma; wing base narrowly more yellowed; veins brown, those at wing base more yellowed. Longitudinal veins of outer radial field with macrotrichia, including R_{1+2} , R_3 , R_4 and R_5 , very sparse and scattered on R_{2+3} , M_1 and M_2 . Venation: Sc long, Sc_1 ending opposite R_2 , Sc_1 shorter than R_{2+3+4} , the latter subequal to or longer than R_{2+3} or about two-thirds R_{1+2} ; cell M_1 present, subequal to its petiole; cell 1st M_2 short, subrectangular; $m-cu$ about one-half longer than the distal section of Cu_1 , at near midlength of M_{3+4} .

Abdomen black, the surface weakly shiny, basal rings of the more proximal segments slightly more nacreous; genital shield and valves of ovipositor fulvous, contrasting with the remainder of abdomen. Ovipositor with cerci long and slender, gently upcurved to the acute tips.

Habitat. INDIA (Assam). *Holotype:* ♀, Hkayam Boum, Manipur, 8,500 feet, June 21, 1960 (Fernand Schmid). *Paratopotypes:* 6 ♀♀; *paratypes:* 5 ♀♀, Khamassom, Manipur, 3,900 feet, June 24, 1960 (Fernand Schmid).

Hexatoma (Eriocera) karma is generally similar to *H. (E.) scmilimpida* (Brunetti) which is readily told by the brightened wing disk and darkened wing base, as well as by the increased number of antennal segments in the female.

***Hexatoma (Eriocera) mitra*, new species**

Size medium (wing of female about 15 mm); general coloration of body, antennae, halteres and legs intense black; wings bright brown, prearcular field light yellow; veins unusually glabrous, cell M_1 lacking; ovipositor and genital valves intensely blackened.

♀. Length about 16 mm; wing 15.5 mm; antenna about 3 mm.

Rostrum and palpi black. Antennae of female 9-segmented, black throughout; first flagellar segment slightly less than twice the second, succeeding segments progressively shorter, terminal segment subequal to the penultimate. Head deep black, without an evident vertical tubercle; anterior vertex about four times the diameter of scape.

Thorax velvety black, praescutum with four narrow more plumbeous stripes, the intermediate pair separated by a ground vitta of approximately the same width; remainder of notum velvety black, posterior borders of scutellum and mediotergite vaguely pruinose; praescutal setae relatively sparse but very long and conspicuous, black. Pleura black. Halteres and legs uniformly black. Wings bright brown, prearcular field light yellow, the extreme base of costa brightened; no stigma; veins dark fulvous, slightly darker than the ground. Longitudinal veins beyond cord unusually glabrous, distal section of R_5 with about

a dozen scattered long trichia. Venation: Sc_1 ending shortly before R_2 ; R_s relatively short, slightly more than one-half longer than R_{2+3+4} , the latter subequal to R_{1+2} ; cell M_1 lacking; cell 1st M_2 long-subrectangular; $m-cu$ at three-fourths M_{3+4} .

Abdomen black, the basal lateral areas of tergites light silvery gray, interrupted at the midline. Ovipositor intensely black, including the very long slender nearly straight cerci.

Habitat. INDIA (Assam). *Holotype:* ♀, Sirhoi Kashong, Manipur, 7,500 feet, July 11, 1960 (Fernand Schmid).

This attractive fly suggests species such as *Hexatoma* (*Eriocera*) *shirakii* (Edwards), *H. (E.) morosa* (Osten Sacken), *H. (E.) aterrima* (Brunetti) and some others, differing evidently in the coloration and venation of the wings. The very long intensely blackened valves of the ovipositor should be noted.

Hexatoma (*Eriocera*) *pennata*, new species

Size medium (wing of male 10 mm); general coloration black, including the antennae, halteres and legs; wings strongly blackened; abdomen short, black, with bluish reflections; posterior basitarsus enlarged, provided with conspicuous elongate setae to present a feathered appearance; cell M_1 lacking; macrotrichia present on outer radial veins, lacking on medial branches.

♂. Length about 9 mm; wing 10 mm; antenna about 4 mm.

Rostrum and palpi black. Antennae of male 7-segmented, relatively long, nearly one-half of the body, black throughout; all flagellar segments with sparse scattered coarse erect setae, smallest on terminal one; first flagellar segment subequal in length to the succeeding three combined, second to fourth flagellar segments progressively smaller; terminal segment about one-fourth the penultimate. Head dull black, with abundant porrect black setae; vertical tubercle bilobed, the larger lobe lying behind the anterior one.

Thoracic dorsum almost uniformly dull black, the central line of praescutum and scutum and posterior borders of scutellum and postnotum weakly pruinose. Pleura black, restrictedly more pruinose on pteropleurite and ventral sternopleurite, the latter with small delicate setae. Halteres short, black. Legs entirely

black; posterior legs long, the apex of tibia and the basitarsus dilated, provided with conspicuous fringes of long black setae to produce a feathered appearance, the setae of the basitarsus subequal in length to the diameter of the segment. Wings strongly blackened, prearcular and costal portions more saturated; centers of cells R and M and bases of Cu and $1st A$ slightly paler; veins dark brown. Macrotrichia of longitudinal veins beyond cord relatively sparse, occurring on distal ends of veins R_3 , R_4 and outer section of R_5 , lacking on all outer medial veins. Venation: Sc long, Sc_1 ending opposite the transverse R_2 ; Rs relatively long, nearly twice R_{1+2} ; R_{2+3+4} shorter than basal section of R_5 ; cell M_1 lacking; $m-cu$ at near four-fifths the length of M_{3+4} , subequal to distal section of Cu_1 .

Abdomen short, black, with bluish reflections, hypopygium black.

Habita. INDIA (Assam). *Holotype*: ♂, Sirohi, Manipur, 4,300 feet, June 26, 1960 (Fernand Schmid).

Hexatoma (Eriocera) pennata is a very distinct species by the peculiar structure of the posterior legs. In its general appearance it somewhat resembles *H. (E.) waterstoni* (Edwards), of Macedonia, Greece, a very different fly.

Hexatoma (Eriocera) setigera, new species

General coloration dark brown to black; antennae of male elongate, flagellar segments with conspicuous erect setae; antennae, halteres and legs black; wings strongly infuscated, without stigma, R_2 at or just before radial fork; ovipositor with long slender valves.

♂. Length about 8–8.5 mm; wing 8–8.2 mm; antenna about 8 mm.

♀. Length about 8–9 mm; wing 8–9.5 mm; antenna about 1.9–2.0 mm.

Rostrum exceedingly reduced, black; palpi small, black. Antennae of male 7-segmented, subequal in length to the body or wing, in female much shorter, 9-segmented; scape and pedicel testaceous brown, flagellum black; flagellar segments of male very long, with coarse erect setae over the whole length, addi-

tional to an abundant pale erect pubescence; terminal segment very small, oval, terminating in long setae; in female, segments gradually decreasing in length outwardly, with comparable conspicuous setae, terminal segment about one-half the penultimate. Head dark brown, orbits pruinose; vertical tubercle bilobed, more elevated and conspicuous in the female.

Thorax almost uniformly dark brown, the posterior sclerites of notum in male more yellowed, in female more gray pruinose, in cases the three praescutal stripes darker and more distinct; vestiture of praescutum small and weak. Pleura brown, with darker areas on ventral anepisternum and ventral sternopleurite. Halteres brownish black. Legs with coxae and trochanters brown; remainder of legs black, femoral bases restrictedly paler; claws of male with a slender basal spine, in female this reduced to a small tooth. Wings strongly infuscated, stigma not differentiated; a slightly darker seam over R_s ; veins dark brown. Veins unusually glabrous, beyond cord with a complete series of trichia on distal section of R_s ; costal fringe very short. Venation: Sc_1 ending slightly before to nearly opposite fork of R_s , Sc_2 near its tip; R_{1+2} and R_2 subequal, the latter at or shortly before fork, in the latter case leaving an element R_{3+4} that is approximately one-half R_2 ; cell M_1 lacking; $m-cu$ subequal to distal section of Cu_1 , placed at from one-third to one-half M_{3+4} .

Abdomen brown to brownish black, more or less pruinose, including the genitalia. Ovipositor with valves long and slender, straight. Male hypopygium very large, dististyles blackened.

Habitat. INDIA (Assam). *Holotype:* ♂, Hkayam Boum, Manipur, 8,500 feet, June 21, 1960 (Fernand Schmid). *Allotopotype:* ♀, pinned with type. *Paratopotypes:* 1 ♀, with type; *paratypes:* ♂ ♀, Sihai Khulen, Manipur, 4,700 feet, June 25, 1960; ♀♀, Khaiyang, Manipur, 3,200 feet, June 18, 1960 (Fernand Schmid).

In its general appearance the present fly is most like *Hexatoma (Eriocera) prolixa* Alexander, of the western Himalayas, differing conspicuously in the structure of the antennae and, especially, of the ovipositor.